

**REMARKS/ARGUMENTS**

Reconsideration of this application is respectfully requested. Claims 31 and 60 are amended. Claims 31-44 and 60-66 are currently pending. Claims 37, 38 and 66 are withdrawn.

**I. Rejection of claims 31- 44 under 35 U.S.C. 112**

Claim 31 is amended at line 31 and claim 60 is amended at line 41 to delete the word "rear" from the term "said first steerable rear wheel" in order to provide this term with proper antecedent basis. Thus, the rejection to claims 31-44 under 35 U.S.C. 112 should be withdrawn. The amendments to claims 31 and 60 are not done to further distinguish over the prior art. The amendments to claims 31 and 60 do not raise new issues that would require further consideration and/or search.

**II. Rejection of claims 31- 44 and 60- 65 under 35 U.S.C. 103(a)**

Claims 31, 41, and 42 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,694,925 to Roberts et al. ("Roberts) in view of U.S. Patent No. 5,129,474 to Rauter et al. ("Rauter"). Claims 32-36, 39-40, and 60-65 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts as modified by Rauter and in further view of U.S. Patent No. 5,007,494 to Ohmura et al. ("Ohmura"). Claim 44 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts as modified by Rauter and in further view of U.S. Patent No. 4,837,692 to Shimizu ("Shimizu"). Withdrawal of these rejections is respectfully requested for at least the following reasons.

The M.P.E.P. sets forth the criteria for a rejection for obviousness as follows:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

See, M.P.E.P. § 706.02(j) *citing In re Vaeck*, 947 F.2d 488, 20

USPQ2d 1438 (Fed. Cir. 1991).

**A. Claims 31, 41, and 42**

The rejection of claims 31, 41, and 42 under 35 U.S.C. 103(a) as being unpatentable over Roberts in view of Rauter should be withdrawn for at least the following reasons. The patent to Roberts discloses an electric motor which drives a ball nut and screw arrangement to turn the front wheels of a vehicle. The patent to Rauter discloses a hydraulic motor having a piston which is moved to rotate a sector gear, which is the toothed segment 23, to turn steerable wheels of a vehicle.

- 1. There is no suggestion or motivation in Roberts, Rauter, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts and Rauter as proposed in the rejection of claim 31.**

There is no suggestion or motivation in Roberts or Rauter or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts and Rauter as proposed in the rejection of claim 31.

Roberts describes an axle 16 connected with a frame 18 by springs 22 and 24. A steering apparatus 12 includes a steering linkage 28 connected with steerable wheels 14. A power steering assembly 32 is operable to actuate the steering linkage

to turn the steerable vehicle wheels 14. The axle 16 is located outside the power steering assembly 32. A base end portion 36 of the power steering assembly 32 is connected with the axle 16 and a steering column 38. The opposite end portion 40 of the power steering assembly 32 is connected with the steering linkage 28. The power steering assembly 32 is extended or retracted to actuate the steering linkage 28. An electric motor 50 rotates an output member 62 to rotate a ball nut 64. Rotation of the ball nut 64 moves an output member 66 axially to move a ball and socket joint 68 at the outer end portion 40 of the power steering assembly 32. The base end portion 36 of the power steering assembly 32 is connected with the axle 16 by a ball and socket joint 172. The ball and socket joint 172 transmits motor reaction forces to the axle 16. The ball and socket joint 172 allows the power steering assembly to rotate about a central axis of a ball stud 180 of the ball and socket joint 172 to accommodate motion of the steering linkage 28. The ball stud 180 is also pivotal about a center 192 to further accommodate relative movement between the axle 16 and the steering linkage 28.

Rauter describes an axle body 1 having a differential housing 8 and axial pipes 9. A steering system 6 has a cylinder 17 formed directly by a cylindrical inner wall of the pipe 9. A working piston 18 is slidably guided in the cylinder 17. A piston rod 20 is attached to the piston 18. The piston rod 20 is a toothed rack 21. A toothed segment connected to a steering shaft 22 meshes with the toothed rack. A longitudinal displacement of the piston 18 causes rotational movement of the steering shaft 22. Rotation of the steering shaft 22 swivels a lever 7 linked with tie rods 5.

There is no suggestion to combine the teachings of Roberts with the teachings of Rauter. Roberts and Rauter teach substantially different steering systems that operate in substantially different ways. Roberts teaches an electric motor for turning steerable wheels and Rauter teaches a hydrostatic assisted steering device. Roberts teaches a manually operated rotatable input shaft and an axially movable output member extending along an axis of a main housing and Rauter teaches rotatable driving shafts extending from a differential housing through pipes 9. Roberts teaches a steering assembly having one axial end connected with an axle and a second axial end connected with steering linkage and Rauter teaches a steering device integrated into an axle body. Roberts teaches a ball and socket joint that transmits motor reaction forces to an axle. Roberts teaches an axially moving an output member to move steerable wheels and Rauter teaches rotating an output member to move steerable wheels. Thus, Roberts and Rauter describe substantially different steering systems that operate in substantially different ways. Accordingly, there is no suggestion to combine the teachings of Roberts and Rauter.

The Office Action states that it would have been obvious to have modified Roberts steering system and axle assembly with an integral axle assembly in order to provide a more compact steering axle assembly, much like that suggested by Rauter. However, the Office Action fails to indicate how the Roberts steering system would have been modified to have an integral axle assembly. Specifically, Roberts would need to be substantially modified to include a driving shaft extending through the steering assembly 32. Also, Roberts, specifically teaches a ball and socket joint

for transmitting motor reaction forces to an axle. The Office Action fails to indicate how Roberts would have been modified to transmit motor reaction forces to the axle.

Furthermore, the Office Action states that it would be obvious to modify Roberts with the steering linkage setup of Rauter "simply as an alternative position for linking the steering assembly of Roberts ball/nut steering assembly to steerable wheel using an alternative linkage arrangement as suggested by Rauter steering linkage setup". However, this reason is not a suggestion or motivation for combining Roberts with Rauter. It is the same as merely reconstructing the claimed invention from selected pieces of the prior art without any suggestion, teaching or motivation, which is impermissible. Uniroyal, Inc. v. Rudkin-Wilely Corp., 837 F.2d 1044, 1051-52, 5 USPQ2d 1434, 1438 (Fed Cir. 1988). One of ordinary skill in the art will recognize that there is no need or motivation to modify the steering assembly of Roberts in the manner shown in Rauter.

The motivation to combine requires desirability, not simply an alternative linkage arrangement and an alternative position for linking the steering assembly of Roberts. For example, Winner International Royalty Corp. v. Wang, 202 F.3d 1340, 53 USPQ2d 1580 (Fed. Cir.), *cert denied*, 530 U.S. 1238 (2000) is a case in which a trade-off alone was insufficient to provide motivation to combine. In Winner International Royalty Corp. v. Wang, the U.S. Court of Appeals for the Federal Circuit affirmed the district court's conclusion that there was no motivation to combine a prior art automotive antitheft device that used a dead-bolt lock with the prior art ratcheting mechanism to create an antitheft device that employed a ratcheting mechanism to lock the device to the car's steering wheel. This conclusion was

based on the fact that one of ordinary skill in the art would not have reasonably elected to trade the security of a dead-bolt lock for the convenience of a ratcheting mechanism, and thus the lock was not shown to be combinable with such a mechanism. Likewise, to provide an alternative linkage arrangement and an alternative position for linking the steering assembly of Roberts" is insufficient to provide the required motivation to combine Roberts and Rauter.

Also, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). In view of Rauter, one of ordinary skill in the art would be lead away from substituting the electric motor 50 of Roberts for the hydraulic motor used by Rauter. This is because the hydraulic motor of Rauter can provide substantially greater force to actuate a steering mechanism than the electric motor of Roberts. In addition, Rauter contemplates that a drive shaft 12 will extend through the working piston 18 of the hydraulic motor. It would be impossible to have a drive shaft for a differential gear system extend through the electric motor of Roberts. Furthermore, Roberts contemplates a ball and socket joint for transmitting motor reaction forces to an axle. If Roberts were modified to include an integrated axle assembly, as suggested in the Office Action, there would no longer be a ball and socket joint for transmitting motor reaction forces to the axle. The only suggestion for combining these two diverse references must have been from applicant's own disclosure.

The Office Action also fails to indicate how the Roberts steering system would have been modified to incorporate first and second steering linkages connected to a takeoff assembly in an intermediate portion of a chamber as described by Rauter. Specifically, Roberts teaches an axially movable output member and Rauter teaches a rotatable output member. Accordingly, Roberts would need to be substantially modified to include a rotatable output member as described in Rauter.

For the reasons set forth above, the rejection of claim 31 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the reference or in the knowledge generally available to one of ordinary skill in the art to combine Roberts and Rauter as proposed in the rejection of claim 31.

**2. A combination of Roberts and Rauter fails to teach or suggest all of the claim limitations of claim 31.**

The proposed combination of Roberts and Rauter does not teach or suggest all of the claim limitations of claim 31. In particular, neither Roberts nor Rauter taken alone or in combination teach or suggest a takeoff assembly having a portion projecting from an opening in an intermediate portion of an axle and being movable along the linear path with a steering member.

Roberts does not disclose a takeoff assembly having a portion projecting from an opening in an intermediate portion of an axle in the manner set forth in claim 31. The patent to Rauter discloses a hydraulic motor disposed within an axle and having a piston with rack gear teeth which are disposed in meshing engagement with gear teeth on a rotatable steering shaft 22. If the piston 18 of Rauter is considered to be a

steering member and the rotatable steering shaft 22 is considered to be a takeoff assembly, it is clear that the takeoff assembly is not connected to a first end of the steering member, that is, the piston 18 of Rauter. Furthermore, the takeoff assembly is not movable with the piston along a linear path. Merriam-Webster's Online dictionary defines linear as "of, relating to, resembling, or having a graph that is a line and especially a straight line". The steering shaft 22 of Rauter rotates and does not move along a linear path.

Further, Rauter fails to disclose or suggest a steering member and a takeoff assembly that moves along the linear path of movement of the steering member. In Rauter, the steering shaft 22 moves in a manner that is not along the linear path of movement of the piston 18.

For the reasons set forth above, the rejection of claim 31 under 35 U.S.C. 103(a) as being obvious over Roberts and Rauter fails to establish a prima facie case for obviousness because the proposed combination of Roberts and Rauter does not teach or suggest all of the limitations of claim 31. Therefore, in view of the above-mentioned reasons, claim 31 is allowable.

Claim 41, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for the feature that the steering member is free of rack teeth. None of the cited references disclose or suggest this feature and including all of the limitations of claim 31. Therefore, claim 41 is allowable.

Claim 42, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for the feature that the electric motor is effective to resist movement of the steering member toward a straight ahead position. None of



the cited references disclose or suggest this feature and including all of the limitations of claim 31. Therefore, claim 42 is allowable.

**B. Claim 32**

Claim 32, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for the feature recited therein. Specifically, claim 32 sets forth a spring assembly as being disposed in the chamber in the axle. The spring assembly biases the steering member toward a straight ahead position.

The proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest a spring assembly disposed in the chamber in the axle and biasing the steering member toward a straight ahead position.

The patent to Ohmura discloses a spring 98 which is disposed in a housing 40. The housing 40 houses a rear wheel turning rod, which extends through the spring 98. The housing 40 of Ohmura is not an axle. The housing 40 of Ohmura does not support steerable wheels of a vehicle. There is no disclosure in any of the references of having a spring assembly disposed in a chamber in an axle to bias a steering member toward a straight ahead position in the manner set forth in claim 32. The proposed modification of Roberts with Rauter fails to disclose the spring assembly as recited in claim 32, as also admitted by the Examiner. Therefore, for this additional reason, the rejection of claim 32 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness. Thus, in view of the above-mentioned reasons, claim 32 is allowable.

**C. Claim 33**

Claim 33, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for the additional feature recited therein. In particular, claim 31 sets forth a spring assembly as disposed in a chamber in the axle. The spring assembly comprises a single spring acting to bias the steering member toward a straight ahead position when the steering member is moved from the straight ahead position.

The proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest this feature. The patent to Ohmura discloses a spring 98 which is disposed in a housing 40. The housing 40 houses a rear wheel turning rod, which extends through the spring 98. The housing 40 of Ohmura is not an axle. The housing 40 of Ohmura does not support steerable wheels of a vehicle. There is no disclosure in any of the references of having a spring assembly disposed in a chamber in an axle to bias a steering member toward a straight ahead position in the manner set forth in claim 33. The proposed modification of Roberts with Rauter fails to disclose the spring assembly as recited in claim 33, as also admitted by the Examiner. Therefore, for this additional reason, the rejection of claim 33 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness. Thus, in view of the above-mentioned reasons, claim 33 is allowable.

**D. Claim 34**

Claim 34, which depends from claim 33, should be allowed for the same reasons as claim 33 and also for at least the following reasons. In particular, claim 34 sets forth fixed stops as being disposed in the chamber in the axle and the spring captured between the fixed stops when the steering member is in a straight ahead position. The steering member has movable stops that are movable relative to the fixed stops to compress the spring upon movement of the steering member from the straight ahead position.

- 1. There is no suggestion or motivation in Roberts, Rauter, Ohmura, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 34.**

There is no suggestion or motivation in Roberts, Rauter, Ohmura or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts, Rauter, and Ohmura as proposed in the rejection of claim 34. In fact, the Office Action has not set forth any motivation or suggestion to combine Ohmura with Roberts and Rauter in the rejection of claim 34.

For the reasons set forth above, the rejection of claim 34 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Ohmura fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the reference or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 34.

**2. A combination of Roberts, Rauter, and Ohmura fails to teach or suggest all of the claim limitations of claim 34.**

The proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the claim limitations of claim 34.

The proposed combination of Roberts and Rauter fails to disclose or suggest the stops as recited in claim 34. The patent to Ohmura discloses a pair of stoppers 100 and 102 (Fig. 2). However, the stoppers 100 and 102 of Ohmura are not disposed in a chamber in an axle which supports first and second steerable wheels of a vehicle. The housing 40 of Ohmura is not an axle. The housing 40 of Ohmura does not support steerable wheels of a vehicle. For the reasons set forth above, the rejection of claim 34 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness because the proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the limitations of claim 34. Thus, in view of the above-mentioned reasons, claim 34 is allowable.

**E. Claims 35 and 36**

Claim 35, which depends from claim 31, should be allowed for the same reason as claim 31 and also for at least the following reasons. Claim 35 sets forth a spring assembly as being disposed in a chamber in the axle. The takeoff assembly includes a piston located between the ball nut and the spring assembly. The spring assembly is effected to urge the takeoff assembly toward a straight ahead position.

**1. There is no suggestion or motivation in Roberts, Rauter, Ohmura, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 35.**

There is no suggestion or motivation in Roberts, Rauter, Ohmura or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts, Rauter, and Ohmura as proposed in the rejection of claim 35. In fact, the Office Action has not set forth any motivation or suggestion to combine Ohmura with Roberts and Rauter to provide a piston located between a ball nut and a spring assembly.

For the reasons set forth above, the rejection of claim 35 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Ohmura fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the reference or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 35.

**2. A combination of Roberts, Rauter, and Ohmura fails to teach or suggest all of the claim limitations of claim 35.**

The proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the claim limitations of claim 35. In particular, the proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest a takeoff assembly that includes a piston located between a ball nut and a spring assembly, which is effected to urge the takeoff assembly toward a straight ahead position.

The patent to Ohmura discloses a ball nut 82. The patent to Ohmura also discloses a spring 98. However, the ball nut and spring of Ohmura are not disposed in a chamber in an axle which supports vehicle wheels in the manner set forth in claim 31 from which claim 35 depends. Furthermore, the patent to Ohmura does not

disclose a piston which is located between the ball nut and the spring assembly. Roberts and Rauter also do not disclose or suggest this feature recited in claim 35. For the reasons set forth above, the rejection of claim 35 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness because the proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the limitations of claim 35. Thus, in view of the above-mentioned reasons, claim 35 is allowable.

Claim 36 depends from claim 35 and is therefore allowable as depending from an allowable claim and for the specific features recited therein.

**F. Claim 39**

Claim 39, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for at least the following reasons. Claim 39 sets forth a motor control system which is operative to enable the generation of the back EMF in the motor upon movement of the steering member toward the straight ahead position in order to resist movement of the steering member toward the straight ahead position.

- 1. There is no suggestion or motivation in Roberts, Rauter, Ohmura, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 39.**

There is no suggestion or motivation in Roberts, Rauter, Ohmura or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts, Rauter, and Ohmura as proposed in the rejection of claim 39. In fact, the

Office Action has not set forth any motivation or suggestion to combine Ohmura with Roberts and Rauter as proposed in the rejection of claim 39.

For the reasons set forth above, the rejection of claim 39 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Ohmura fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the reference or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 39.

**2. A combination of Roberts, Rauter, and Ohmura fails to teach or suggest all of the claim limitations of claim 39.**

The proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the claim limitations of claim 39. In particular, the proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest a motor control system which is operative to enable the generation of the back EMF in the motor upon movement of a steering member toward the straight ahead position in order to resist movement of the steering member toward the straight ahead position. The patent to Ohmura discloses a motor 32 having a brake 46 and a double clutch mechanism 48. The motor 32 of Ohmura does not have a motor control system which is operative to enable the generation of back EMF in a motor in the manner set forth in claim 39. The proposed modification of Roberts with Rauter also fails to disclose this feature as recited in claim 39. For the reasons set forth above, the rejection of claim 39 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness because the

proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the limitations of claim 39. Thus, in view of the above-mentioned reasons, claim 39 is allowable.

**G. Claim 40**

Claim 40, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for at least the following reasons. Claim 40 sets forth the electric motor as being located outside the chamber in the axle. The drive member extends through an opening formed in the axle.

- 1. There is no suggestion or motivation in Roberts, Rauter, Ohmura, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 40.**

There is no suggestion or motivation in Roberts, Rauter, Ohmura or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts, Rauter, and Ohmura as proposed in the rejection of claim 40. In fact, the Office Action has not set forth any motivation or suggestion to combine Ohmura with Roberts and Rauter to provide an electric motor located outside a chamber in an axle and also to provide a drive member that extends through an opening in the axle.

For the reasons set forth above, the rejection of claim 40 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Ohmura fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the references or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 40.



**2. A combination of Roberts, Rauter, and Ohmura fails to teach or suggest all of the claim limitations of claim 40.**

The proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the claim limitations of claim 40. In particular, the proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest an electric motor located outside the chamber in the axle and a drive member that extends through an opening formed in the axle.

The patent to Ohmura discloses a reduction gear train 50 which extends through an opening in a housing 40. However, the housing 40 of Ohmura is not an axle which supports vehicle wheels. Roberts and Rauter do not disclose an electric motor located outside a chamber in an axle, as also admitted by the Examiner.

For the reasons set forth above, the rejection of claim 40 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness because the proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the limitations of claim 40. Thus, in view of the above-mentioned reasons, claim 40 is allowable.

**H. Claim 43**

Claim 43, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for at least the following reasons. In particular, claim 43 sets forth a locking member for locking a steering member in a straight ahead position.

**1. There is no suggestion or motivation in Roberts, Rauter, Ohmura, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 43.**

There is no suggestion or motivation in Roberts, Rauter, Ohmura or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts, Rauter, and Ohmura as proposed in the rejection of claim 43. In fact, the Office Action has not set forth any motivation or suggestion to combine Ohmura with Roberts and Rauter to provide a locking member for locking a steering member in a straight ahead position.

For the reasons set forth above, the rejection of claim 43 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Ohmura fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the references or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 43.

**2. A combination of Roberts, Rauter, and Ohmura fails to teach or suggest all of the claim limitations of claim 43.**

The proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest a locking member for locking the steering member in a straight ahead position, as recited in claim 43. Thus, the rejection of claim 43 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness because the proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the limitations of claim 43. Thus, in view of the above-mentioned reasons, claim 43 is allowable.

**I. Claim 44**

Claim 44, which depends from claim 31, should be allowed for the same reasons as claim 31 and also for the additional feature recited therein. In particular, claim 44 sets forth a drive member as being a belt which extends partway around the ball nut and partway around an output member connected with the electric motor.

There is no suggestion or motivation in Roberts, Rauter, Shimizu or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts, Rauter, and Shimizu as proposed in the rejection of claim 44. The Office action states that it would have been obvious to modify the steering system of Roberts as modified by Rauter with an alternative drive means such as a belt suggested by Shimizu in place of a gear driven means "simply as a matter of design choice dependent upon users preferences because belts are old and well known alternative drive means in the art". However, this reason is speculative and not a suggestion or motivation for combining Roberts and Rauter with Shimizu. It is the same as merely reconstructing the claimed invention from selected pieces of the prior art without any suggestion, teaching or motivation, which is impermissible. Uniroyal, Inc. v. Rudkin-Wilely Corp., 837 F.2d 1044, 1051-52, 5 USPQ2d 1434, 1438 (Fed Cir. 1988). One of ordinary skill in the art will recognize that there is no need or motivation to modify the steering system of Roberts as modified by Rauter in the manner shown in Shimizu.

The motivation to combine requires desirability, not simply an alternative drive means, which is a matter of design choice dependent upon users preference. As previously mention, the case of Winner International Royalty Corp. v. Wang, 202

F.3d 1340, 53 USPQ2d 1580 (Fed. Cir.), *cert denied*, 530 U.S. 1238 (2000) held that a trade-off alone was insufficient to provide motivation to combine.

Thus, the rejection of claim 44 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Shimizu fails to establish a *prima facie* case for obviousness, because there is no suggestion or motivation in the reference or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Shimizu in the rejection of claim 44. Therefore, in view of the above-mentioned reasons, claim 44 is allowable.

**J. Claim 60**

The rejection of claim 60 under 35 U.S.C. 103(a) as being unpatentable over Roberts as modified by Rauter in further view of Ohmura should be withdrawn for at least the following reasons. Independent claim 60 is directed to a steering system for a vehicle having steerable wheels. The system includes an axle having end portions which are suspended by springs and which support first and second steerable wheels of a vehicle. A steering member is supported in a chamber in the axle. The steering member is movable between a straight ahead position and positions offset from the straight ahead position of the steering member.

A spring assembly is set forth as being disposed in the chamber in the axle and as being connected with the steering member. The spring assembly is effective to provide force which urges the steering member toward the straight ahead position when the steering member is in a position offset from the straight ahead position. A ball nut is associated with a screw thread portion of the steering member and is disposed in a chamber in the axle. A drive member is connected with the electric

motor and the ball nut to rotate the ball nut to move the steering member away from the straight ahead position against the influence of force provided by the spring assembly upon actuation of the electric motor.

In addition, claim 60 sets forth a motor control system as being connected with the electric motor and operative to enable generation of back EMF in the electric motor upon movement of the steering member toward the straight ahead position under the influence of the spring assembly. The back EMF generated in the electric motor is effective to oppose movement of the steering member toward the straight ahead position under the influence of force applied by the spring assembly.

A takeoff assembly is connected to the steering member. The takeoff assembly has a portion projecting from an opening in the intermediate portion of the axle. A first steering linkage is connected with the projecting portion of the takeoff assembly and extends along the outer side of the axle to transmit movement of the takeoff assembly to the first steerable wheel. A second steering linkage is connected with the projecting portion of the takeoff assembly and extends along the outer side of the axle to transmit movement of the takeoff assembly to the second steerable wheel.

- 1. There is no suggestion or motivation in Roberts, Rauter, Ohmura, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 60.**

There is no suggestion or motivation in Roberts, Rauter, Ohmura or in the knowledge of one of ordinary skill in the art to combine the reference teachings of

Roberts, Rauter, and Ohmura as proposed in the rejection of claim 60. As discussed above, there is no suggestion to combine Roberts and Rauter.

Furthermore, there is no suggestion or motivation to combine Roberts and Rauter with Ohmura with respect to the feature recited in claim 60 of a motor control system which is operative to enable the generation of the back EMF in the motor upon movement of the steering member toward the straight ahead position under the influence of the spring assembly, which back EMF is effective to oppose movement of the steering member toward the straight ahead position under the influence of force provided by the spring assembly. In fact, the Office Action has not set forth any motivation or suggestion to combine Ohmura with Roberts and Rauter with respect to this feature.

For the reasons set forth above, the rejection of claim 60 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Ohmura fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the reference or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura in the rejection of claim 60.

**2. A combination of Roberts, Rauter, and Ohmura fails to teach or suggest all of the claim limitations of claim 60.**

The proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest a spring assembly disposed in the chamber in the axle and being effective to provide force to urge the steering member toward a straight ahead position.

The patent to Ohmura discloses a spring 98 which is disposed in a housing 40. The housing 40 houses a rear wheel turning rod, which extends through the spring 98. The housing 40 of Ohmura is not an axle. The housing 40 of Ohmura does not support steerable wheels of a vehicle. There is no disclosure in any of the references of having a spring assembly disposed in a chamber in an axle and being effective to provide force to urge the steering member toward a straight ahead position in the manner set forth in claim 60. Roberts and Rauter also fail to disclose the spring assembly as recited in claim 60, as also admitted by the Examiner.

Further, the proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest a motor control system which is operative to enable the generation of the back EMF in the motor upon movement of a steering member toward the straight ahead position under the influence of the spring assembly, which back EMF is effective to oppose movement of the steering member toward the straight ahead position under the influence of force provided by the spring assembly. The patent to Ohmura discloses a motor 32 having a brake 46 and a double clutch mechanism 48. The motor 32 of Ohmura does not have a motor control system which is operative to enable the generation of back EMF in a motor in the manner set forth in claim 60. The proposed modification of Roberts with Rauter also fails to disclose this feature as recited in claim 60.

For the reasons set forth above, the rejection of claim 60 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness because the proposed combination of Roberts, Rauter,

and Ohmura does not teach or suggest all of the limitations of claim 60. Thus, in view of the above-mentioned reasons, claim 60 is allowable.

Claims 61, 63, and 65 which depend from claim 60, are therefore allowable as depending from an allowable claim and for the specific features recited therein.

**K. Claim 62**

Claim 62, which depends from claim 60, should be allowed for the same reasons as claim 60 and also for at least the following reasons. Claim 62 sets forth the electric motor as being located outside of the chamber in the axle. The drive member extends through an opening formed in the axle.

- 1. There is no suggestion or motivation in Roberts, Rauter, Ohmura, or in the knowledge generally available to one of ordinary skill in the art to combine Roberts, Rauter, and Ohmura as proposed in the rejection of claim 62.**

There is no suggestion or motivation in Roberts, Rauter, Ohmura or in the knowledge of one of ordinary skill in the art to combine the reference teachings of Roberts, Rauter, and Ohmura as proposed in the rejection of claim 62. In fact, the Office Action has not set forth any motivation or suggestion to combine Ohmura with Roberts and Rauter to provide an electric motor located outside a chamber in an axle and also to provide a drive member that extends through an opening in the axle.

For the reasons set forth above, the rejection of claim 62 under 35 U.S.C. 103(a) as being obvious over Roberts in view of Rauter and Ohmura fails to establish a prima facie case for obviousness, because there is no suggestion or motivation in the references or in the knowledge generally available to one of



ordinary skill in the art to combine Roberts, Rauter, and Ohmura in the rejection of claim 62.

**2. A combination of Roberts, Rauter, and Ohmura fails to teach or suggest all of the claim limitations of claim 62.**

The proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the claim limitations of claim 62. In particular, the proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest an electric motor located outside the chamber in the axle and a drive member that extends through an opening formed in the axle.

The patent to Ohmura discloses a reduction gear train 50 which extends through an opening in a housing 40. However, the housing 40 of Ohmura is not an axle which supports vehicle wheels. The proposed modification of Roberts with Rauter also does not disclose an electric motor located outside a chamber in an axle, as also admitted by the Examiner.

For the reasons set forth above, the rejection of claim 62 under 35 U.S.C. 103(a) as being obvious over Roberts, Rauter, and Ohmura fails to establish a prima facie case for obviousness because the proposed combination of Roberts, Rauter, and Ohmura does not teach or suggest all of the limitations of claim 62. Thus, in view of the above-mentioned reasons, claim 62 is allowable.

**L. Claim 64**

Claim 64, which depends from claim 60, should be allowed for the same reasons as claim 60 and also for the feature that the takeoff assembly is connected to a first end of the steering member for movement therewith along a linear path.

The proposed combination of Roberts, Rauter, and Ohmura does not disclose or suggest this feature. Merriam-Webster's Online dictionary defines linear as "of, relating to, resembling, or having a graph that is a line and especially a straight line". The steering shaft 22 of Rauter, which is considered to be a takeoff assembly, rotates and does not move along a linear path. Therefore, claim 64 is allowable.

**M. Claims 37, 38 and 60**

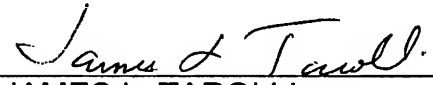
Claims 37, 38 and 60 are allowable and should no longer be withdrawn since they depend from allowable generic or linking claims.

In view of the foregoing, it is respectfully submitted that the above-identified patent application is in condition for allowance, and allowance of the above-identified patent application is respectfully requested.

If for any reason the Examiner believes that a telephone conference would expedite the prosecution of this application, it is respectfully requested that the Examiner call applicant's attorneys in Cleveland, Ohio at 621-2234, area code 216.

Please charge any deficiency in the fees for this application to our  
Deposit Account No. 20-0090.

Respectfully submitted,

  
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